

X-Sender: wiemann.paul@email.atdiv.lanl.gov  
Date: Fri, 07 Feb 2003 17:13:49 -0700  
To: rselvage@lanl.gov  
From: Paul Wiemann <wiemann@lanl.gov>  
Subject: Hydrogen target, FP-12  
Cc: penttila@lanl.gov, ron@lanl.gov  
Status:

Ron,

I am sure you are aware of the liquid hydrogen target that is slated for installation on FP-12 (Seppo's Flight Path). Much engineering design and safety analysis has been performed already, but we feel it is time to get with facility management and make sure we are on the right track in relation to AB (ISAD). As our readiness coordinator, I think we need to meet with you and try to identify and address any facility issues early on (i.e. impacts to other operations at Lujan). Seppo will be out till the 18th, so I propose setting up a meeting maybe on the 20th?? Can you pick a time and place convenient to you and get back with us to confirm. Thanks bud!!!

paul

---

Paul Wiemann, M.S., CIH  
LANSCE-12 Safety Officer  
(505) 667-2334  
Pager: 104-8386

X-Sender: selvage.ron@email.atdiv.lanl.gov  
Date: Sat, 08 Feb 2003 13:57:28 -0700  
To: Paul Wiemann <wiemann@lanl.gov>  
From: Ronald Selvage <rselvage@lanl.gov>  
Subject: Re: Hydrogen target, FP-12  
Cc: penttila@lanl.gov, ron@lanl.gov  
Status:

Paul,

That is a good idea. I am booked all day on the 18th for a UCN meeting, lets try for the 19th at 3:00 in the LANSCE-FM conference Rm.

Ron

At 05:13 PM 2/7/2003 -0700, Paul Wiemann wrote:

Ron,

I am sure you are aware of the liquid hydrogen target that is slated for installation on FP-12 (Seppo's Flight Path). Much engineering design and safety analysis has been performed already, but we feel it is time to get with facility management and make sure

we are on the right track in relation to AB (ISAD). As our readiness coordinator, I think we need to meet with you and try to identify and address any facility issues early on (i.e. impacts to other operations at Lujan). Seppo will be out till the 18th, so I propose setting up a meeting maybe on the 20th?? Can you pick a time and place convenient to you and get back with us to confirm. Thanks bud!!!

paul

---

Paul Wiemann, M.S., CIH  
LANSCE-12 Safety Officer  
(505) 667-2334  
Pager: 104-8386

**Ronald Selvage**

LANSCE-FM, Safety Basis Manager  
Los Alamos National Laboratory MS: H814  
Phone: (505) 667-1349 Fax: (505) 665-4825  
Cell: (505) 699-3803  
E-mail: [rselvage@lanl.gov](mailto:rselvage@lanl.gov)

Date: Sun, 30 Mar 2003 22:27:57 -0500 (EST)  
Subject: Re: LH2 report  
From: "W. Mike Snow" <[snow@iucf.indiana.edu](mailto:snow@iucf.indiana.edu)>  
To: <[penttila@lanl.gov](mailto:penttila@lanl.gov)>  
X-Priority: 3  
Importance: Normal  
Reply-To: [snow@iucf.indiana.edu](mailto:snow@iucf.indiana.edu)  
Status:

Seppo:

(1) let me know what info you need for the pressure vessel people. We have materials origins, pressure test results, radiography pictures, etc...

(2) name is S. Santra. I want to hesitate a bit before he becomes official, he is a brand-new postdoc and I want to see how good he is in the lab, but it is my intention to send him to LANL for the experiment.

(3) our idea for the CCl<sub>4</sub> target is to put it into the beam by have by removing the front cover of the spin flipper and inserting a Teflon cell into the downstream end of the flipper. we are now testing an all-Teflon system (won't affect the RF) which we hope will seal the CCl<sub>4</sub> without ill effect.

Mike

X-Sender: penttila@128.165.51.16  
Date: Tue, 29 Apr 2003 10:44:46 +0300  
To: snow@iucf.indiana.edu  
From: seppo penttila <penttila@lanl.gov>  
Subject: LANL pressure vessel committee  
Status:

Mike,

Finally I had contact with a guy who has a seat in LANL pressure vessel committee and in the hydrogen committee and here is what we need to do to get forward.

1. pressure vessel committee:

send electronically to the chair

- GHS diagram - it would be important to have a component list especially for components that will see the pressure? Can you provide the list?

- finite element calculation document. I have this.

- summary of tgt vessel - materials, how weldings were checked, pressure test summary.

These should be brief. Can you provide these?

- he most probably will ask some of the drawings that we should already prepare as pdf files.

2. Hydrogen safety committee

send electronically to the chair

- GHS diagram - the present one is okay to him

He will start with the GHS diagram and then start to ask questions.

We need to keep contact to these guys. They will be present in our coming reviews.

thanks

seppo

> Mike,

> see my questions

> seppo

>

>>Seppo:

>>

>>March 2003 progress report.

>>

>>(1) procurement, testing, assembly, pressure testing, and leak testing

>> of gas handling system. Successful long-term operation of RGA as a H2

>> detector

> and as a He detector.

>

>

>>(2) procurement of PLC control system cabling. Sufficient progress of  
>> PLC control system to implement target tests.  
>>  
>>(3) procurement of target main vacuum system and titanium target vessel  
>> with all required documentation for safety analysis. Successful thermal  
>> shock leak tests of titanium target vessel. Construction of temporary  
>> stand for LH2 target for accident scenario tests and installation of  
>> mechanical refrigerators. Procurement of mechanical refrigerator power  
>> supplies for operation inside the cave.  
>  
> I have to contact the LANL pressure vessel committee to get their  
> blessing for the system  
>  
>  
>>(4) arrival of new IUCF postdoc to work on LH2 target  
>  
> Who?  
>  
>>(5) test of leak-tightness of concept for teflon CCl4 target and seals  
>> in progress.  
>  
> Can you describe how we operate this CCl4 tgt - I need to get this to  
> our safety person who told that there is no problem but we need to be  
> sure.  
>  
>  
>>  
>>--  
>>W. Mike Snow  
>>Associate Professor of Physics  
>>Indiana University/IUCF  
>>2401 Milo B. Sampson Ln.  
>>Bloomington, IN 47408  
>>IUCF phone: (812) 855-7914  
>>IUCF FAX: (812)-855-6645  
>>cell phone: (812)-322-2277  
>>  
>>  
>>Attachment converted: Macintosh HD:NPDGIUCF403.mpp (MPP /MSPJ)  
>> (00042F3A) Content-Type: application/octet-stream;  
>> name="NPDGIUCF403.mpx"  
>>Content-Disposition: attachment; filename="NPDGIUCF403.mpx"  
>>  
>>Attachment converted: Macintosh HD:NPDGIUCF403.mpx (???/----)  
>> (00042F3B)

--

W. Mike Snow  
Associate Professor of Physics  
Indiana University/IUCF  
2401 Milo B. Sampson Ln.  
Bloomington, IN 47408  
IUCF phone: (812) 855-7914  
IUCF FAX: (812)-855-6645  
cell phone: (812)-322-2277

X-Sender: bourque@esh-mail.lanl.gov  
Date: Thu, 22 May 2003 11:15:13 -0600  
To: seppo penttila <penttila@lanl.gov>  
From: Robert Bourque <bourque@lanl.gov>  
Subject: LH2 target for the NPDG experiment  
Cc: dbowman@lanl.gov, hill\_dallas@lanl.gov, kellyb@lanl.gov, tmark@lanl.gov,  
philr@lanl.gov, kchristensen@lanl.gov, bhogan@lanl.gov, jratliff@lanl.gov,  
gglass@lanl.gov  
Status:

Seppo,

After our discussion of the NPDG Gas Handling System at LANSCE, the only correction I suggest is to place a pressure relief valve near the main gas bottle supply. The set pressure should be at the maximum allowable working pressure of the downstream system, based on the weakest component.

Also, please check to ensure that the normally closed valves remain so in the event of a power outage.

Thanks,

Bob

At 04:21 PM 5/20/2003 -0700, you wrote:

Bob,  
great, on Wednesday I can come after 3pm?  
seppo

Seppo,

I have looked over the fax you sent me and would like to discuss it with you. We can meet anytime this week except tomorrow before 10. Let me know.

Bob

At 07:25 PM 5/19/2003 -0700, you wrote:

Dear Robert,

International NPDGamma collaboration is in process to build an experiment at the Lujan center to measure a tiny gamma-ray asymmetry when cold polarized neutrons are captured by para-hydrogen.

The experiment requires a 20 liter para-hydrogen target. The design and construction of the target has continued for a while. We have a target safety committee that has approved the design and thus allowed to go forward with the target construction. When talking with Dallas Hill he suggested that we need to contact you as a head of lab pressure vessel committee, too. To initiate our discussion I send you this message with attachment - gas handling system diagram - that will give you an idea of the target system. Please, let me know how we should go forward and what other information you would like to have.

Thanks,

seppo

*Dr. Robert F. Bourque*

Date: Sat, 31 May 2003 15:55:21 -0500 (EST)

Subject: Re: regarding GHS and its enclosure

From: "W. Mike Snow" <snow@iucf.indiana.edu>

To: <penttila@lanl.gov>

X-Priority: 3

Importance: Normal

Cc: <lozowski@iucf.indiana.edu>, <nann@iucf.indiana.edu>

Reply-To: snow@iucf.indiana.edu

Status:

Seppo:

We plan to introduce dry nitrogen gas and let the LH2 escape through the exhaust. I THINK we designed the GHS so that this will not burst a rupture disk, we will check.

We did a test to estimate the time that it would take to get the LH2 out. Hermann know the exact answer, but I think it is something like ~10 minutes or so. Using nitrogen is much faster than helium gas due to the heat release of the nitrogen freezing on the walls of the vessel.

> Hi,  
> a question; how are we venting the tgt? In a normal situation when we  
> want to empty the target, how will we do it - go through the relief  
> valve? Normally people have a vent valve parallel with the rupture  
> disks and relief valves for a vent.  
> As soon as you have a conceptual design for the GHS enclosure let me  
> know since I need to present it to the fire marshal. Important are  
> materials, door closing system, electrical wiring inside, how  
> ventilation line is connected, how the volume of the shielding  
> chimney will be connected to the enclosure. In the GHS diagram we need  
> with dashed line to show which components are inside the  
    ➤ enclosure - where are the boundaries.

X-Sender: penttila@128.165.51.16  
Date: Tue, 19 Aug 2003 14:40:42 -0700  
To: Ray Sartor <sartor@lanl.gov>  
From: seppo penttila <penttila@lanl.gov>  
Subject: Re: NPDGamma Liquid Hydrogen Target Engineering Document  
X-Scanned-By: MIMEDefang 2.35  
Status:

Dear Ray,  
I found this message from my old pile.  
Have I sent you the document?  
seppo

I am working on the Safety Assessment Document (SAD) for LANSCE. The  
"NPDGamma Liquid Hydrogen Target Engineering Document" (11/10/01) has a  
significant amount of information that needs to be rolled up to the SAD. Would you  
email me the most recent revision of this document?

Thanks,  
Ray

X-Sender: sartor@esh-mail.lanl.gov  
Date: Tue, 19 Aug 2003 17:24:52 -0600  
To: seppo penttila <penttila@lanl.gov>  
From: Ray Sartor <sartor@lanl.gov>  
Subject: Re: NPDGamma Liquid Hydrogen Target Engineering Document  
X-Scanned-By: MIMEDefang 2.35  
Status:

Thanks for writing back, but no you haven't. If you have it convenient, please send it on.  
If you don't, don't worry about it. Turns out I needed to condense the hazard  
identification rather than the verbatim copy I originally anticipated.

Thanks,  
Ray

At 03:40 PM 8/19/2003, you wrote:  
Dear Ray,  
I found this message from my old pile.  
Have I sent you the document?  
seppo

I am working on the Safety Assessment Document (SAD) for LANSCE. The "NPDGamma Liquid Hydrogen Target Engineering Document" (11/10/01) has a significant amount of information that needs to be rolled up to the SAD. Would you email me the most recent revision of this document?

Thanks,  
Ray

X-Sender: nelson.ron@email.atdiv.lanl.gov  
Date: Fri, 22 Aug 2003 16:51:28 -0600  
To: jeffs@lanl.gov (Jeff Schinkel), wiemann@lanl.gov (Paul Wiemann)  
From: Ron Nelson <ron@lanl.gov>  
Subject: hydrogen target  
Cc: penttila@lanl.gov (Seppo I. Penttila), ajhurd@lanl.gov (Alan Hurd),  
rhyne@lanl.gov  
X-Scanned-By: MIMEDefang 2.35  
Status:

Mike Snow and I chatted briefly regarding the possibility of running the H2 target in MPF-??? in our south yard. To me this seems like a good idea. Let's start to cumulate some operational experience prior to installation in FP12. Of course this may involve some additional planning and reviews. Jeff, how do we stand with HCPs for the operation of the beast?

Later.  
Ron.

X-Sender: penttila@128.165.51.16  
Date: Sat, 23 Aug 2003 15:51:51 -0700  
To: Ron Nelson <ron@lanl.gov>  
From: seppo penttila <penttila@lanl.gov>  
Subject: Re: hydrogen target  
Cc: jeffs@lanl.gov, wiemann@lanl.gov, ajhurd@lanl.gov, rhyne@lanl.gov  
X-Scanned-By: MIMEDefang 2.35  
Status:

Ron,  
now you know why we wanted the shed MPF-35. I have talked already to Jane Lataille/fire marshal who will visit the shed next week. Her words will be the start. The tgt HCP for the operation w. or w/o H2 first in MPF-35 is in progress.  
seppo

Mike Snow and I chatted briefly regarding the possibility of running the H2 target in MPF-??? in our south yard. To me this seems like a good idea. Let's start to cumulate some operational experience prior to installation in FP12. Of course this may involve some additional planning and reviews. Jeff, how do we stand with HCPs for the operation of the beast?

Later.  
Ron.

X-Sender: penttila@128.165.51.16  
Date: Mon, 25 Aug 2003 08:34:20 -0700  
To: lataille@lanl.gov  
From: seppo penttila <penttila@lanl.gov>  
Subject: I would like to show you MPF-35  
X-Scanned-By: MIMEDefang 2.35  
Status:

Jane,  
On the hallway briefly I told you that the npdgamma LH2 tgt is presently assembled in bld MPF-35 next to Lujan Center. Because of a change in our commissioning plan of the experiment, we have proposed a possibility to fully test the LH2 tgt in bld MPF-35. I would like to show you the building and hear your opinion.  
Let me know when you have time to visit us.  
Thanks,  
seppo

X-Sender: lataille@beasley.lanl.gov  
Date: Wed, 03 Sep 2003 15:46:52 -0600  
To: seppo penttila <penttila@lanl.gov>  
From: Jane I Lataille <lataille@lanl.gov>  
Subject: Re: npdg gas handling system diagram  
X-Scanned-By: MIMEDefang 2.35  
Status:

Seppo -- I can't open the file you sent. Can you try another format? Or print one out and put it in the mail? Or let me know it's ready and I can come get it. -- Thanks, Jane

At 11:57 AM 8/28/2003 -0700, you wrote:

Jane,  
attached is the schematic of the gas handling system of the npdg experiment.  
It was good to see you again and hear your advices that we are implementing in our HCP  
and in plans of H2 usage in bld 35.  
seppo

**Jane I. Lataille, P.E.**  
**FWO-FIRE Fire Protection Group**  
**Mail Stop M713**  
**Los Alamos National Laboratory**  
**Los Alamos, NM 87545**  
**Phone: 505-667-3600 Fax: 505-665-7193**

X-Sender: lataille@beasley.lanl.gov  
Date: Fri, 05 Sep 2003 11:07:16 -0600  
To: seppo penttila <penttila@lanl.gov>  
From: Jane I Lataille <lataille@lanl.gov>  
Subject: Re: npdg gas handling system diagram  
X-Scanned-By: MIMEDefang 2.35  
Status:

Great, thanks

At 06:00 PM 9/4/2003 -0700, you wrote:

Jane,  
I sent the diagram by mail. It's size is 11x17 so it is more readable.  
seppo

Seppo -- I can't open the file you sent. Can you try another format? Or print one out and put it in the mail? Or let me know it's ready and I can come get it. -- Thanks, Jane

At 11:57 AM 8/28/2003 -0700, you wrote:

Jane,  
attached is the schematic of the gas handling system of the npdg experiment.  
It was good to see you again and hear your advices that we are implementing in our HCP  
and in plans of H2 usage in bld 35.  
seppo

**Jane I. Lataille, P.E.**  
**FWO-FIRE Fire Protection Group**  
**Mail Stop M713**  
**Los Alamos National Laboratory**  
**Los Alamos, NM 87545**  
**Phone: 505-667-3600 Fax: 505-665-7193**

X-Sender: lataille@beasley.lanl.gov  
Date: Mon, 25 Aug 2003 13:25:43 -0600  
To: seppo penttila <penttila@lanl.gov>  
From: Jane I Lataille <lataille@lanl.gov>  
Subject: Re: I would like to show you MPF-35  
X-Scanned-By: MIMEDefang 2.35  
Status:

OK, see you there.

At 12:23 PM 8/25/2003 -0700, you wrote:

Jane,  
2:30 is fine.  
Meet at Lujan reception  
seppo

How about at 2:30 today?

At 08:34 AM 8/25/2003 -0700, you wrote:

Jane,  
On the hallway briefly I told you that the npdgamma LH2 tgt is presently assembled in bld MPF-35 next to Lujan Center. Because of a change in our commissioning plan of the experiment, we have proposed a possibility to fully test the LH2 tgt in bld MPF-35. I would like to show you the building and hear your opinion.  
Let me know when you have time to visit us.  
Thanks,  
seppo

**Jane I. Lataille, P.E.**  
**FWO-FIRE Fire Protection Group**  
**Mail Stop M713**  
**Los Alamos National Laboratory**  
**Los Alamos, NM 87545**  
**Phone: 505-667-3600 Fax: 505-665-7193**

X-Sender: lataille@beasley.lanl.gov  
Date: Thu, 13 May 2004 08:08:26 -0600  
To: seppo penttila <penttila@lanl.gov>  
From: Jane I Lataille <lataille@lanl.gov>  
Subject: Re: A hydrogen question  
X-Scanned-By: MIMEDefang 2.35  
Status:

Seppo -- In general this sounds OK, but I also need a little more information. The type of pipe (spec) and fittings to be used (VCR fittings should be used for H2 service). Pipe sizes. A simple sketch showing the arrangement (like a P&ID). I assume that the spare cylinders will *not* normally be connected to the manifold. Would like to see the procedure (HCP) for using H2 inside MPF-35 (when H2 piping/systems inside will be pressurized/not pressurized). Also need procedure for leak testing after cylinder change-out. -- Jane

At 04:10 PM 5/11/2004 -0600, you wrote:

Jane,

we have been little busy with a run at Lujan since January. Beam finally was turned off on April 21st. This gave us a chance to go back to the hydrogen target effort again in the shed, bldg 35, on Lujan yard. Regarding the hydrogen supply for the shed I have the following questions for you.

A plan is to have next to the shed - on the south side - a hydrogen supply shelter. This shelter has a unistrut structure with steel plate floor, no walls, and corrugated steel roof. One wall will have a Al- plate that holds the simple gas manifold, three pressure gauges, two valves, line to the three compressed H2 bottles, and a line out to the target manifold that is inside the shed. The one target charge takes about three bottles. In addition, a plan is that the shelter is large enough for a storage three additional bottles. That would make a rotation of bottles easier when time comes to change the bottles, no interruptions during the operation.

Questions;

1. can we keep six full H2 bottles on the shelter simultaneously
2. is there a regulation that states how close the bldg 35 the shelter can be
3. is the shelter described above acceptable.

Thanks,  
seppo

**Jane I. Lataille, P.E.**  
**FWO-FIRE Fire Protection Group**  
**Mail Stop M713**  
**Los Alamos National Laboratory**  
**Los Alamos, NM 87545**  
**Phone: 505-667-3600 Fax: 505-665-7193**